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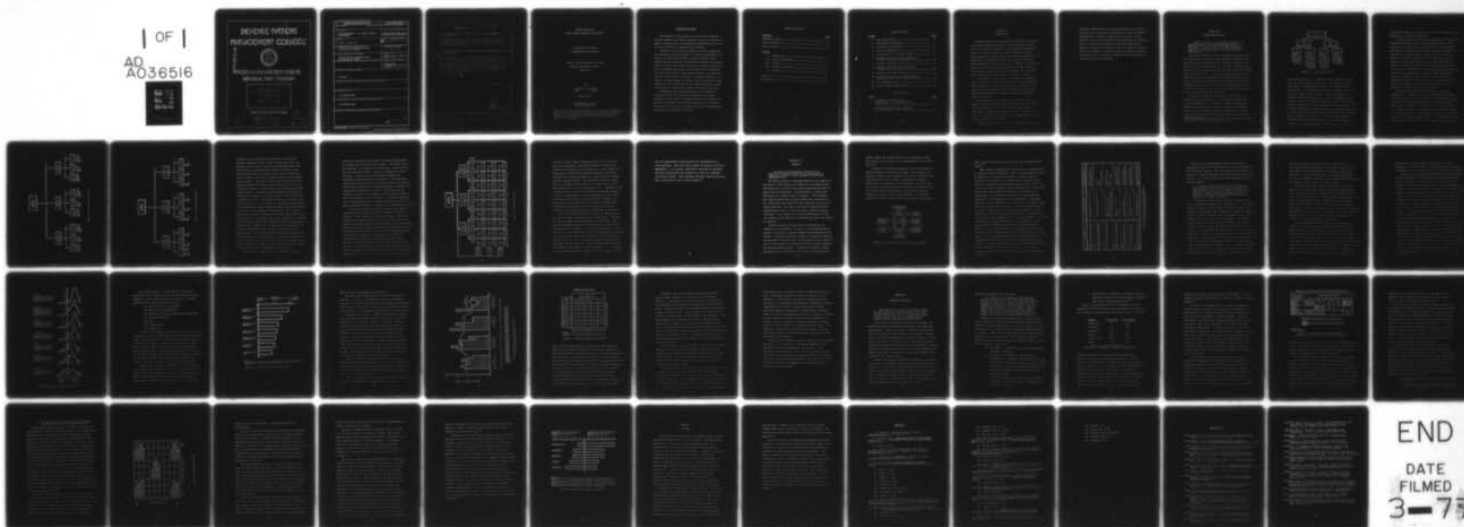
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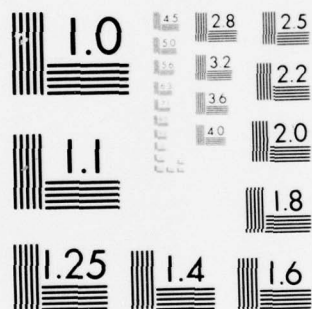
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DEFENSE SYSTEMS MANAGEMENT COLLEGE

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PROGRAM MANAGEMENT COURSE INDIVIDUAL STUDY PROGRAM

MATRIX MANAGEMENT
IS IT REALLY CONFLICT MANAGEMENT?

STUDY PROJECT REPORT
PNC 76-2

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DEFENSE SYSTEMS MANAGEMENT COLLEGE

STUDY TITLE: MATRIX MANAGEMENT: IS IT REALLY CONFLICT
MANAGEMENT?

STUDY PROJECT GOALS:

To discuss the development of matrix management and describe its characteristic features. To investigate the aspect of conflict in the project manager's office and examine some key factors that impact on it.

STUDY REPORT ABSTRACT:

This report provides the potential project manager with a basic knowledge of the key features of matrix management and a comprehensive understanding of one of its fundamental characteristics-conflict. Included is a discussion of the concept of a conflict episode, a description of circumstances which tend to intensify conflict, a listing of those sources or groups with whom conflict is most likely, and an examination of the impact of various management styles on conflict and methods of conflict resolution.

KEY WORD: Matrix Organization

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Nov. 1976

MATRIX MANAGEMENT:
IS IT REALLY CONFLICT MANAGEMENT?

Study Project Report
Individual Study Program

Defense Systems Management College
Program Management Course
Class 76-2

by

Richard P. Skowronek
LTC USArmy

November 1976

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This study project report represents the views and conclusions of the author and does not necessarily reflect the official opinion of the Defense Systems Management College or the Department of Defense.

EXECUTIVE SUMMARY

The purpose of this study is to provide the potential project manager with a basic knowledge of the key features of matrix management and a comprehensive understanding of one of its most fundamental characteristics-conflict.

Conflict is an inevitable product of matrix management. As a result the project manager of a matrix organization must know how to deal with conflict so that its dysfunctional aspects are minimized and its beneficial aspects are promoted. Louis R. Pondy's model the "Dynamics of a Conflict Episode" is used to describe the concept of conflict and to investigate its particular effects. This paper includes: (1) a description of circumstances which tend to intensify conflict; (2) a listing of those sources or groups with whom conflict is most likely; and (3) a discussion of the impact of various management styles on conflict and methods of conflict resolution.

Information was obtained primarily as a result of a literature search of the current material in this area. Extensive use was made of research conducted by Thamhain and Wilemon on conflict in a project-oriented work environment, and of Blake and Mouton's managerial grid and its application to conflict as described by Filley.

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CHAPTER I

INTRODUCTION

Project management, as practiced by the three Services in the development and acquisition of weapon systems, employs some form of matrix management. One of the main characteristics of matrix organization is the inevitable conflict which arises as a result of the organizational structure. Unfortunately many project managers are often unprepared to deal effectively with conflict once it develops. Understanding conflict and its causes are important to project managers. The ability to deal with conflict can often mean the difference between success and failure in managing a project.

The purpose of this study is to provide the potential project manager with an understanding of: (1) the characteristic features of a matrix organization in general; (2) the determinants and sources of conflict resulting from matrix management; and (3) the management styles and methods for resolving conflict.

The approach used to develop the information in this study was a survey of the literature dealing with the matrix management process and the problem areas encountered by organizations employing matrix structures. Several interviews were conducted with members of military project manager offices to confirm the findings.

Chapter 2 discusses the development, structure, advan-

tages and disadvantages of a matrix organization in general. Comparisons are made with the traditional line and functional organizations. Chapter 3 addresses the question of what conflict is and the circumstances that lead up to the development of conflicting situations in a matrix organization. Chapter 4 examines five distinct modes of conflict resolution. The various styles of management and their impact on conflict resolution are also explored. Chapter 5 then summarizes the information that was developed.

CHAPTER II

MATRIX ORGANIZATION

Matrix is a way to get maximum utilization of highly technical and specialized resources on projects that do not always need these resources full time. Our customers pay us for X number of people but in reality they may be getting access to 20X people.^{1*}

Most modern scholars classify organizations into one of four basic categories: line, line and staff, functional, and matrix. The matrix organization is actually a hybrid of the line and functional organizations. In order to better understand the matrix concept, both the line and functional theories will be discussed first. Note that the line and staff organization is the line organization with staff elements added to provide specialized assistance to an executive who cannot be effective due to the size of the of the organization. Since a staff can be added to any type organization when required, it will not be discussed in this paper.

Historically, the line structure is the oldest and simplest organizational form. The primary characteristic of a line organization is the ordering of the organizational elements more in terms of relative authority and responsibility and less in terms of functions performed. A direct chain of command links the top-most level to the successively

¹This notation will be used throughout the paper for footnotes. Footnotes are listed at the end of the study.

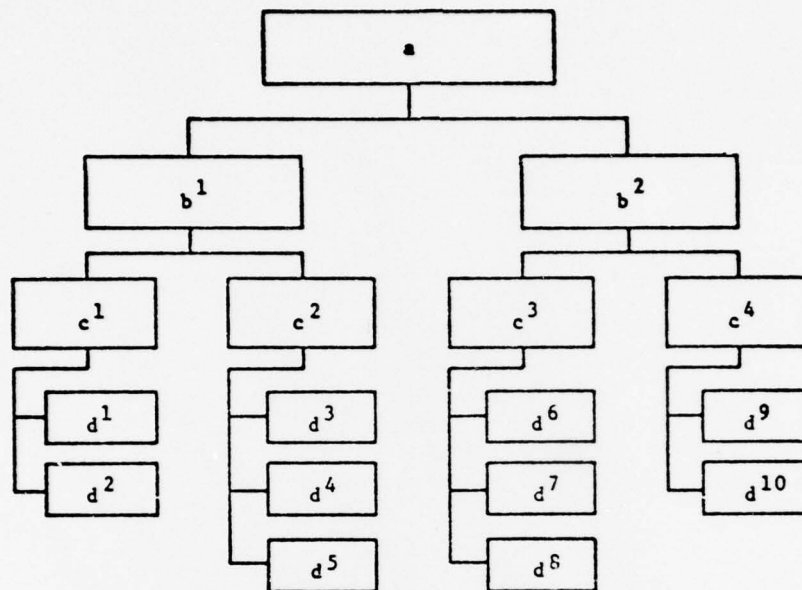


Figure 1. Line Organization²

lower levels (figure 1). Branching occurs whenever a supervisor has more than one subordinate; the supervisory lines then proceed step-by-step down through all levels of the organization. No organizational element is outside of one of the lines joining top to bottom. Using this arrangement, everyone has one, definite person to whom he reports and has undivided charge of the duties assigned to him.³ This concept is often referred to as the scalar chain because each link of the scale represents a direct superior-subordinate relationship. A simple line organization is characteristic of small military units (company and below), and internally within business organizations that are product oriented or where there are relatively few large projects.⁴ In the latter case when a

business uses this type structure, it is often referred to as product or pure project management.

In recent years, firms such as aerospace and construction companies undertaking large and long range projects, have organized by setting up pure project groups. All personnel and resources necessary to complete the specific project are assigned to a project group. Figure 2 shows this type of structure. Project managers have full authority over the people and total responsibility for the development of the project. Commercial companies favor this type organization for such tasks as developing a new product, building a factory, or investigating areas that depart from their traditional business. Generally, this approach is taken for one-time undertakings that are infrequent, unique or unfamiliar to the present organization, and complex with respect to inter-dependence of detail task accomplishment.⁵

The functional theory is the classical approach to organization. A typical functional organizational structure is shown in Figure 3. This structure is characterized by the breakdown of the organization into its functional units.⁶ Each of the functional sublevels of the organization reports on a direct line basis to progressively higher level managers in its functional area. The top line functional managers all report to the single general manager. Where there are projects which require work from all or most functional areas, the

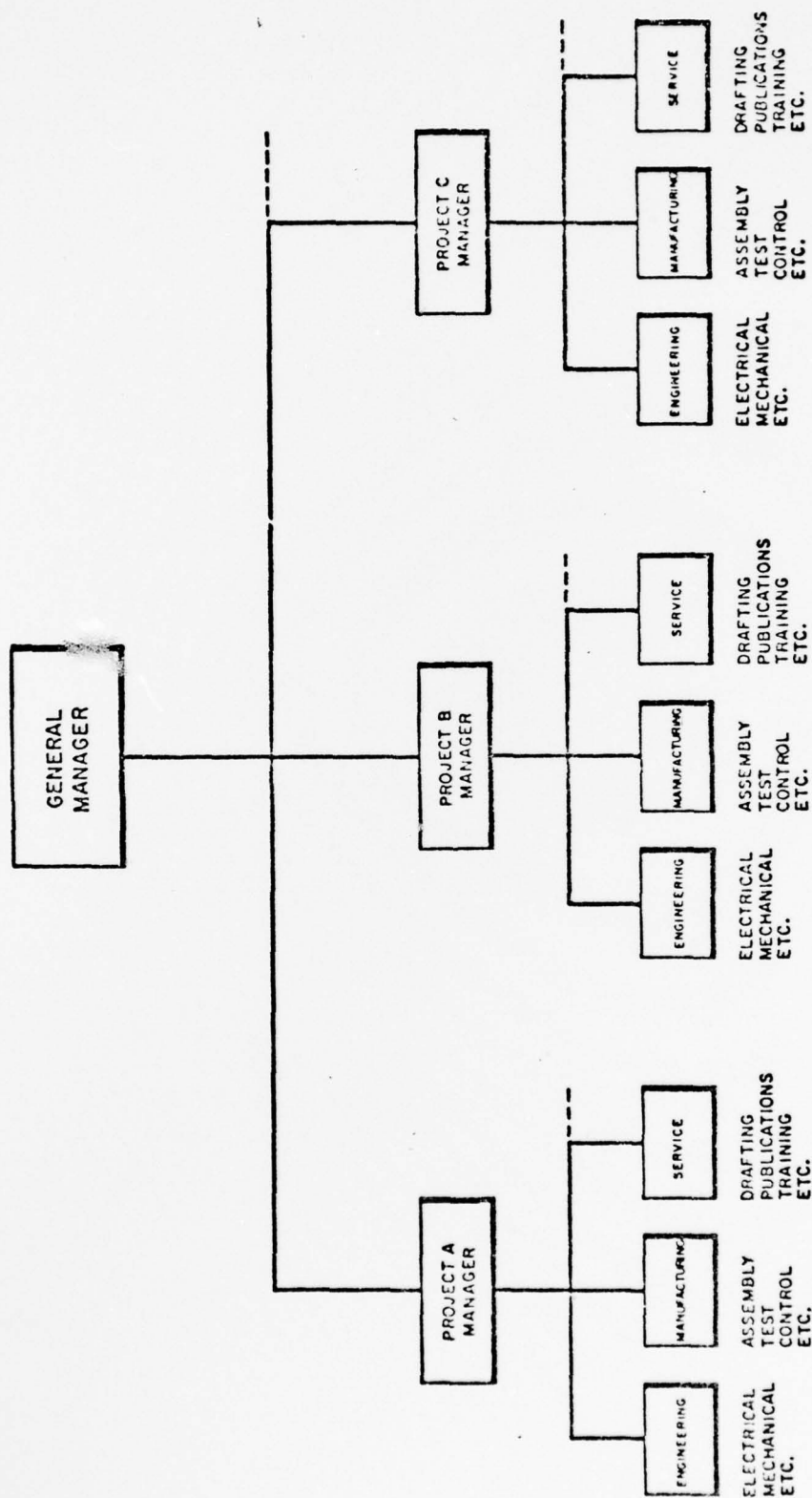


Figure 2. Pure Project Organization⁷

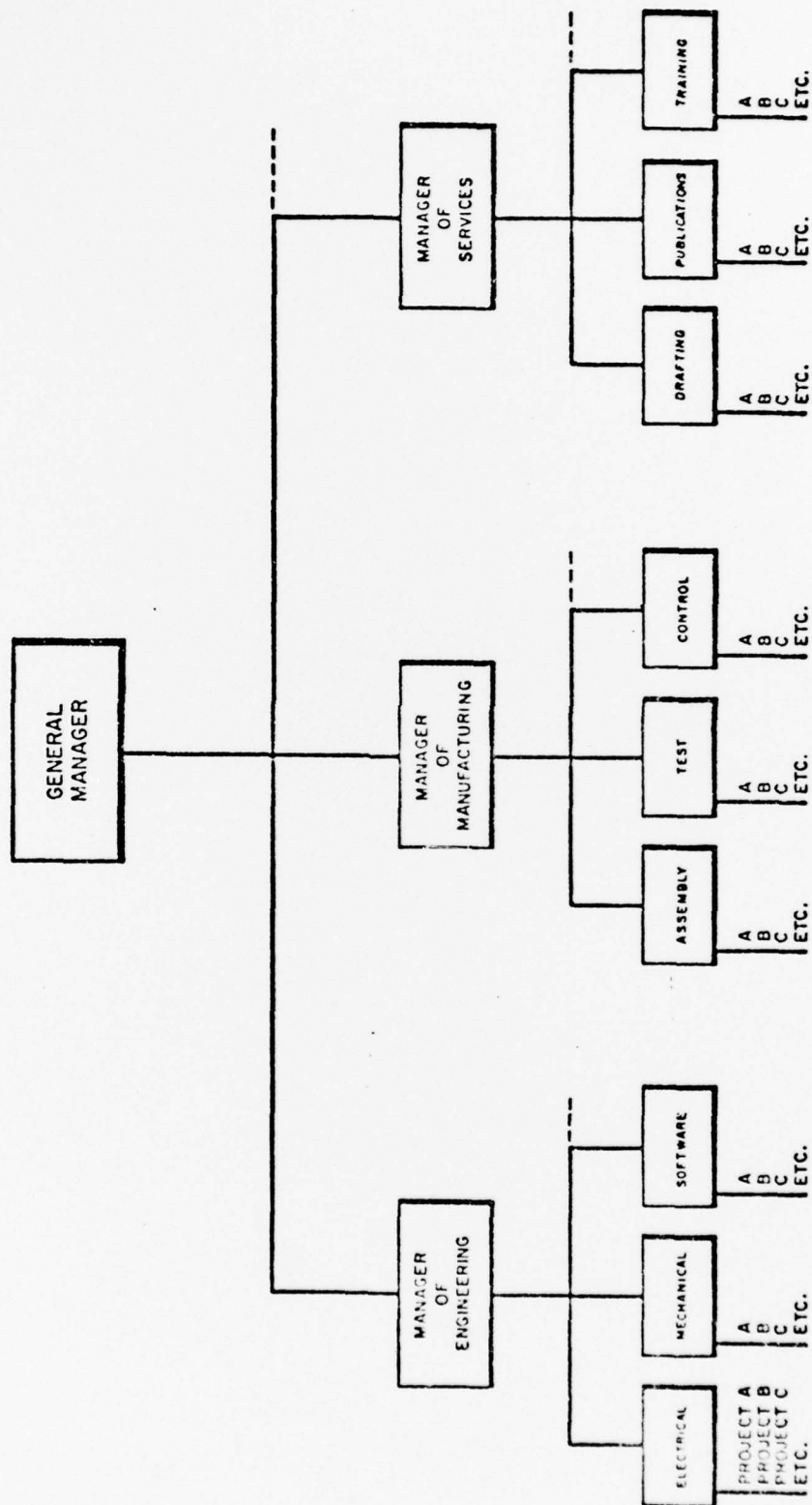


Figure 3. Functional Organization⁸

project work is subdivided and allocated at the lowest possible management level so that at any given time, many projects may be worked on within a single functional group. The functional organizational structure is usually found where the projects are numerous, small, and of relatively short duration, such as in a typical consumer goods manufacturing company. This type organizational structure becomes attractive when the nature of the work activities creates a continuous demand for a particular work speciality or operational service. For example, a manufacturing operation may progress from producing a single occasional unit to producing a continuous volume. Here, the economics of an assembly line become apparent. In an engineering organization, the services of an inside power supply design specialist may be unwarranted if demand for those services is infrequent, but it may be economical to create an entire power supply design department if the demand is continuous. Once such a department is formed, problems arising throughout the total organization relating to power supply techniques can be directed to its attention and the total organization will be able to share in the new capabilities. This example can be generalized to support the broad observation that creation of a functional organization, when the need for it exists, enables a company to take advantage of economies of scale and to enhance its overall capability in the functional organization's speciality.⁹

While the line organization is considered to be the

oldest and simplest type structure, the matrix organization is probably the newest and most complex. The matrix theory was developed to incorporate the advantages of both the line and the functional theory. Figure 4 illustrates a matrix structure. Project supervision extends horizontally. Functional supervision extends vertically. The functional organization is permanent in nature and provides the specialized talent necessary for the accomplishment of detailed work usually highly technical in nature. These personnel are primarily concerned with functional design, quality, performance and reliability of the project. The project organization is superimposed over the functional organization and is mainly concerned with cost, schedule and a deliverable product.¹⁰

The initial reaction to anyone examining this type of organizational structure is that it violates the unity of command. Workers have to report to two bosses. This would indeed be a serious shortcoming if the two bosses are given authority over the same people with respect to the same matters. However, the basic precept of the matrix organization is that the authority of the two bosses extend to different matters, hence each has different responsibilities. Thus it is essential that authority be explicitly defined between program and functional supervisors to avoid confusion and disunity. Generally speaking, the program supervisor should have the authority to determine what a given work task is to include and when it is to be accomplished. Specific respon-

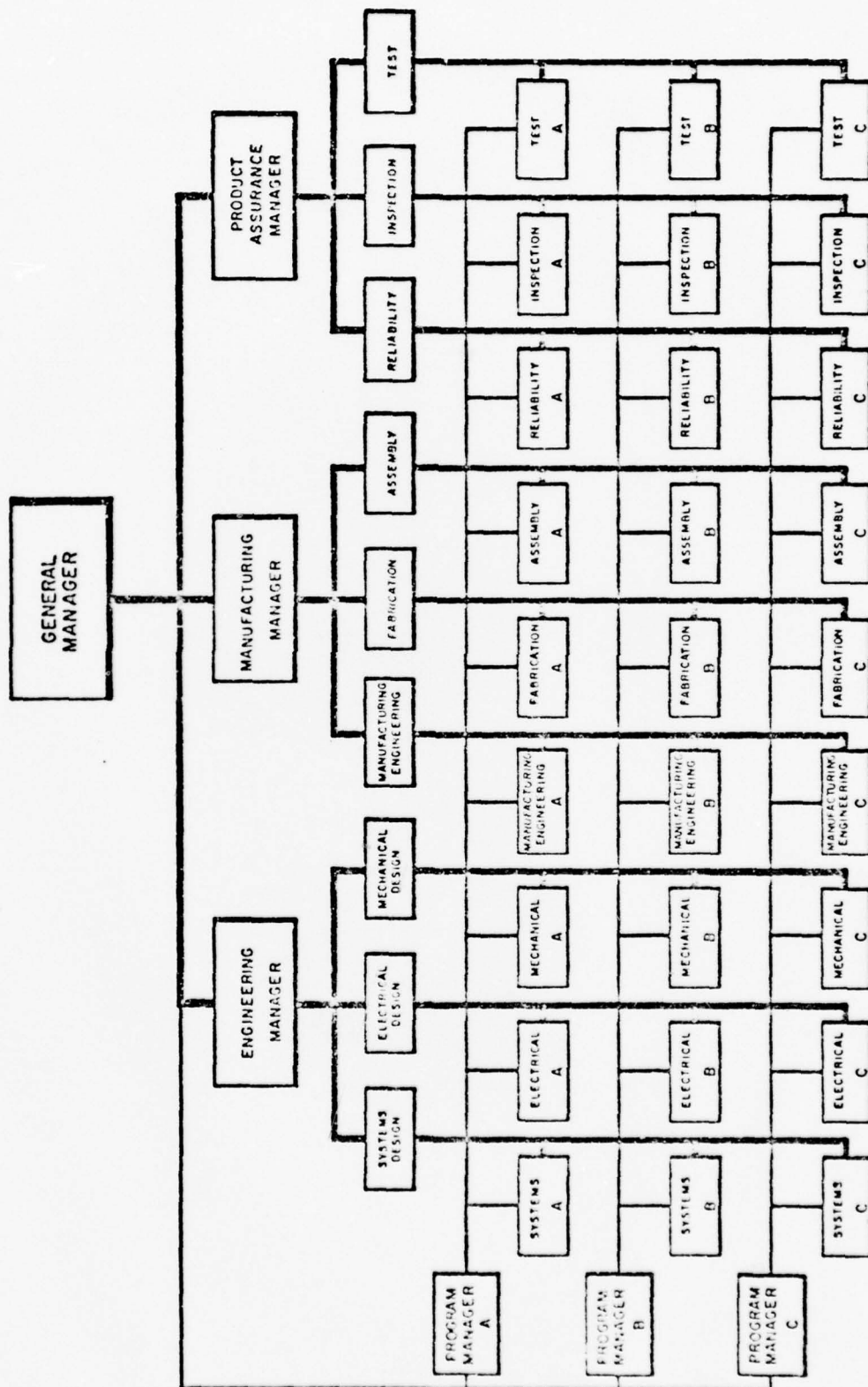


Figure 4. Matrix Organization¹¹

sibilities might include: establishing the overall plan to meet the requirements; establishing design uniformity and reliability standards for the program as a whole; decision on subcontracts; establishing internal schedules; monitoring progress and initiating changes; and submitting all required external program reports. The functional supervisor should have the authority to determine how the work task is to be accomplished and who is to be assigned to it. Examples of his responsibilities might be formulating the technical approach to meet the requirement; assigning personnel to work tasks; administering personnel and reviewing their salaries; and determining departmental budgets, policies and procedures. Unfortunately some decisions will overlap into both the program and functional areas which could lead to conflict.¹²

One of the first companies to employ the matrix theory was TRW when they reorganized in the early 1960's. Employing the matrix concept at TRW has had its difficulties. Each project supervisor competes for resources and manpower with other project supervisors. As one TRW employee put it, "The project office by nature has a hell-with-everyone-else attitude." Its view is short-term while the support groups' (functional) outlook is longer term. The support group supervisors must determine priorities and the necessary trade-offs to meet the simultaneous requirements of several projects. D. R. McRell, a TRW industrial relations staffer stated, "The project office

and the departmental support groups are fundamentally at cross purposes. The chief skill needed for matrix is conflict management." As a result, sensitivity training for managers and their subordinates was conducted in order to implement the matrix concept. This training continues today particularly when a new project team is being formed.¹³

CHAPTER III

CONFLICT

The matrix organizational structure is in reality an attempt at designing an environment of controlled conflict between program and functional organizations.¹⁴

The matrix concept of management was born as a result of the need for more flexibility, creativity, coordination and efficiency due to the ever increasing complexity and cost of modern product development. Simultaneously, a requirement developed for a special breed of managers. These managers must operate across many different functional organizations and obtain work from people over whom they have little or no formal authority. The task of having to coordinate diverse organizational units, by its very nature, fosters conflict situations. As a result, one of the prerequisites of a project manager is the ability to recognize the causes and effects of conflict.

Conflict, as used in this study, is defined as the behavior of an individual, a group, or an organization which impedes or restricts a project manager from accomplishing his mission. Although conflict may impede or temporarily restrict the attainment of one's goals, the consequences may be beneficial if they produce new information which, in turn, enhances the decision-making process. By contrast, conflict becomes dysfunctional if it results in poor project decision making.

lengthy delays over issues which do not importantly affect the outcome of the project, or a disintegration of the team's effort.¹⁵

Conflict can be better understood if it is considered a dynamic process which occurs in stages. The following discussion is based on the "Dynamics of a Conflict Episode" model as developed by Louis R. Pondy, a professor in Business Administration at University of Pittsburgh. The five stages of a conflict episode are shown in figure 5 and identified as: (1) latent conflict (conditions); (2) perceived conflict (cognition); and (3) felt conflict (affect); (4) manifest conflict (behavior); and (5) conflict aftermath (conditions).

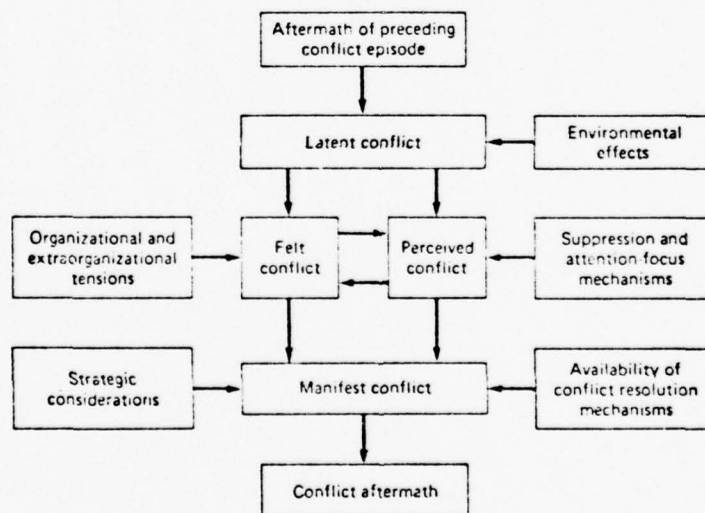


Figure 5. The Dynamics of a Conflict Episode¹⁶

Every conflict episode does not however pass through all five stages.¹⁷

Each conflict episode begins with conditions characterized by certain conflict potentials. This is called latent conflict. It develops as a result of antecedent conditions such as: scarcity of resources, policy differences, superior to subordinate relationship, coordination problems, etc. Since this is an open system, inputs from the environment can dramatically affect the latent conflict conditions. For example, the environment may become more benevolent by making resources available to the organization thus alleviating a particular condition of latent conflict. In the case of a project manager the environmental world of matrix management tends to act as a catalyst in developing two conditions for conflict: (1) the determinants that may increase the likelihood of conflict; and (2) the areas which produce the most intense conflict. Dr. Hans J. Thamhain from General Electric and Dr. David L. Wilemon from Syracuse University have recently conducted several studies in this area as part of an integrated research effort on conflict in a project-oriented work environment. The first phase of their research consisted of exploration interviews with approximately fifty project managers and project support personnel in order to uncover the more common conflict determinants. Based on these interviews, seven propositions and their negative and positive conflict characteristics were developed (Table 1).

Propositions	Potential Beneficial Characteristics	Potential Detrimental Characteristics
<u>Proposition 1</u> The less the specific objectives of a project are understood by project team members the more likely that conflict will develop.	<ul style="list-style-type: none"> Open exchange may develop which clarifies objectives and details of the project. 	<ul style="list-style-type: none"> Conflict over project goals and priorities. Wasted motion by project team. Inability to measure project performance.
<u>Proposition 2</u> The more members of a functional area perceive that the implementation of project management will adversely affect their traditional organizational roles the greater the potential for conflict.	<ul style="list-style-type: none"> May cause functional area to relate more effectively to over-all goals of the organization. 	<ul style="list-style-type: none"> Lack of support. Withdrawal. Subdage. Delay in project accomplishment.
<u>Proposition 3</u> The greater the ambiguity of roles among participants of a project team the more likely that conflict will develop.	<ul style="list-style-type: none"> May insure difficult project issues are responsibly covered. May encourage constructive competition. May foster exchange of ideas in early project phases. Project team members assist in own role definition. 	<ul style="list-style-type: none"> Lack of project focus. Conflict over various "turf issues". Confusion. Avoidance of responsibility.
<u>Proposition 4</u> The greater the agreement on top management goals the lower the potential for detrimental conflict at project level.	<ul style="list-style-type: none"> Lowers potential for parochial conflict among departments. Goal congruency. 	<ul style="list-style-type: none"> Top management goals may not be good for the organization or project. Discourages constructive dialogue of key project issues.
<u>Proposition 5</u> The lower the project manager's formal authority over supporting organizational units, the more likely conflict will occur.	<ul style="list-style-type: none"> Encourages open exchange of ideas. Constructive criticisms and analysis of key project issues. 	<ul style="list-style-type: none"> Slows down decision making process. Uncertainty and disagreement over priorities, manpower, and resource allocations.
<u>Proposition 6</u> The lower the project manager's power of reward and punishment the greater the potential for conflict to develop.	<ul style="list-style-type: none"> Encourages open exchange between project manager and support groups. 	<ul style="list-style-type: none"> May delay decision-making process. May not be able to reward satisfactorily key contributors.
<u>Proposition 7</u> The greater the diversity of expertise among the participants of a project team the greater the potential for conflict.	<ul style="list-style-type: none"> Enhances the decision-making process by providing high quality informational inputs. 	<ul style="list-style-type: none"> May allow project decision-making process due to alternative problem solving approaches augmented.

Table 1. Beneficial and Detrimental Consequences
of Selected Conflict Determinants¹⁸

The first four determinants tend to contribute to potential conflict more often between the project manager and the functional manager. The first proposition centers on a failure to clearly articulate the specific objectives of the project. It is best summed up by the following remarks of a project manager.

Everyone usually understands the objectives of the total project in terms of cost, performance, and schedule. When you break the project down into various subsystems or work packages, problems can develop in making certain that those who support you really understand their objectives and how they relate to the overall project.¹⁹

A problem frequently cited by project personnel deals with jurisdictional jealousies, (proposition 2). For example, suppose a project team is formed to develop a system that employs a "pet concept" of a laboratory. Assume the director of the laboratory perceives that the project manager will receive most of the credit for this concept. In addition a cut of laboratory funds for advanced development of this concept may result, once the project manager develops his project. The laboratory director, then, would be reluctant to support the project team and may contribute to its efforts only marginally. Conversely, if the project has very high visibility and is supported by several diverse groups and departments which closely identify themselves with the project, then each group will tend to lower their goal objectives. They would increase their identification with goals of other groups to

achieve the overall project objectives (proposition 4). In the Apollo Program for example, if a problem emerged, there would often be a coordinated and concentrated focusing of attention by all involved parties on resolving the problem and not on parochial interests. This occurred because the goal of achieving a lunar landing was very dominant.

The third proposition raises the question of who does what. It can occur when supporting functional departments do not know whether they have responsibility for subcontracted work, make or buy decisions, approval of change proposals, etc. This is especially true when a functional manager supports more than one project manager, each of whom has a different philosophy in the amount of latitude they give to the functional support department in terms of developing a subsystem for their project. Both this and the first problem frequently cause conflict in the early phases of the project.

The last three propositions deal more with potential conflict between the project manager and specific support personnel working on the project. The less a working group falls under the formal control (proposition 5) of the project manager and/or the lower the capability of the project manager to reward or penalize them directly or indirectly (proposition 6), the more likely the potential for conflict. In addition, several project managers also feel that a high degree of expertise in the same area among supporting members of the project team

often brings different perceptions and problem solving approaches. The more varied the perceptions toward problem resolution, the more likely conflict will develop (proposition 7).

Although these seven circumstances are not all inclusive, they do represent a comprehensive set of determinants that affect the degree of conflict that may exist. In order to empirically test these propositions, 100 project managers in various industries were asked to indicate the strength of their agreement or disagreement with each proposition on a five point scale. Figure 6 shows the distribution of the responses.. A majority of the project managers supported the first six propositions. The best agreement was with the first circumstance of not clearly articulating the specific objectives of a project. A noticeable exception from the general agreement with these propositions is statement 7. This distribution is bi-modal. Further analysis of responses to proposition 7 showed that one group of program managers experienced higher conflict because they made excessive use of their expertise. For example, a project manager would use his expertise to get overly involved in the technical details of the project and would question, in detail, the contribution of the supporting personnel. This became demotivating to the group of supporting experts and caused conflict. On the other hand another manager would use his expertise judiciously and perceive it as an important influence base in developing respect and project support.²⁰

STATEMENT NO. 1:

THE LESS THE SPECIFIC OBJECTIVES OF A PROJECT ARE UNDERSTOOD BY PROJECT TEAM MEMBERS THE MORE LIKELY THAT CONFLICT WILL DEVELOP

STATEMENT NO. 2:

THE MORE MEMBERS OF A FUNCTIONAL AREA PERCEIVE THAT THE IMPLEMENTATION OF PROJECT MANAGEMENT WILL ADVERSELY AFFECT THEIR TRADITIONAL ORGANIZATIONAL ROLES, THE GREATER THE POTENTIAL FOR CONFLICT

STATEMENT NO. 3:

THE GREATER THE AMBIGUITY OF ROLES AMONG PARTICIPANTS OF A PROJECT TEAM THE MORE LIKELY THAT CONFLICT WILL DEVELOP

STATEMENT NO. 4:

THE GREATER THE AGREEMENT ON TOP MANAGEMENT GOALS THE LOWER THE POTENTIAL FOR DETRIMENTAL CONFLICT AT PROJECT LEVEL

STATEMENT NO. 5:

THE LOWER THE PROJECT MANAGER'S FORMAL AUTHORITY OVER SUPPORTING ORGANIZATIONAL UNITS, THE MORE LIKELY CONFLICT WILL OCCUR

STATEMENT NO. 6:

THE LOWER THE PROJECT MANAGER'S POWER OF REWARD AND PUNISHMENT, THE GREATER THE POTENTIAL FOR CONFLICT TO DEVELOP

STATEMENT NO. 7:

THE GREATER THE DIVERSITY OF EXPERTISE AMONG THE PARTICIPANTS OF A PROJECT TEAM THE GREATER THE POTENTIAL FOR CONFLICT

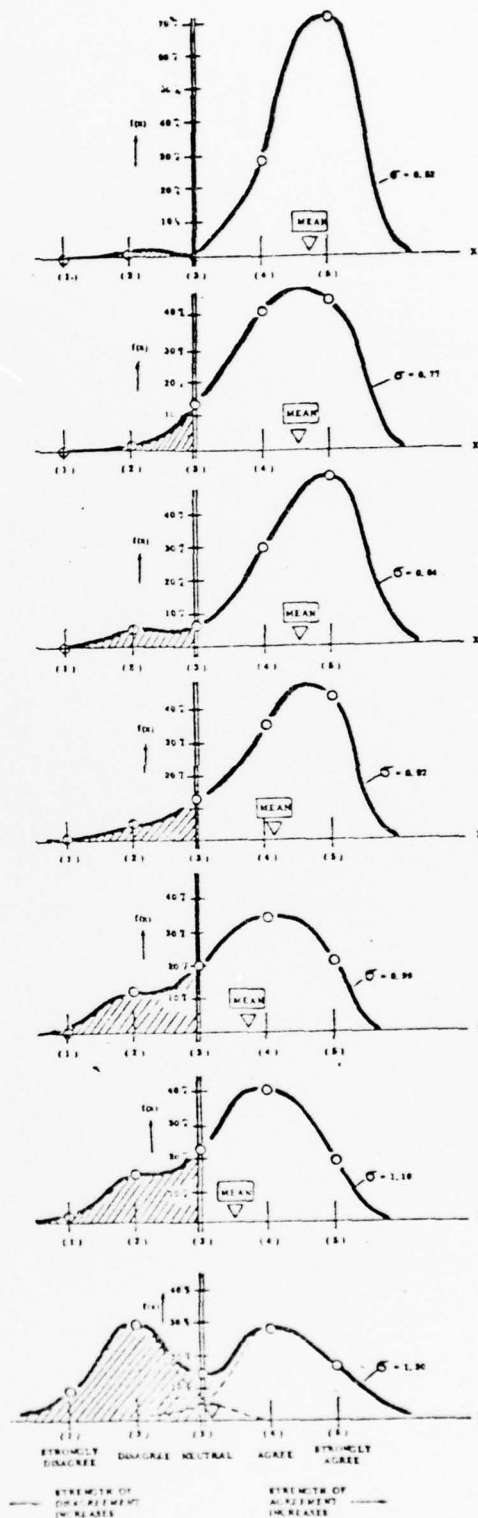


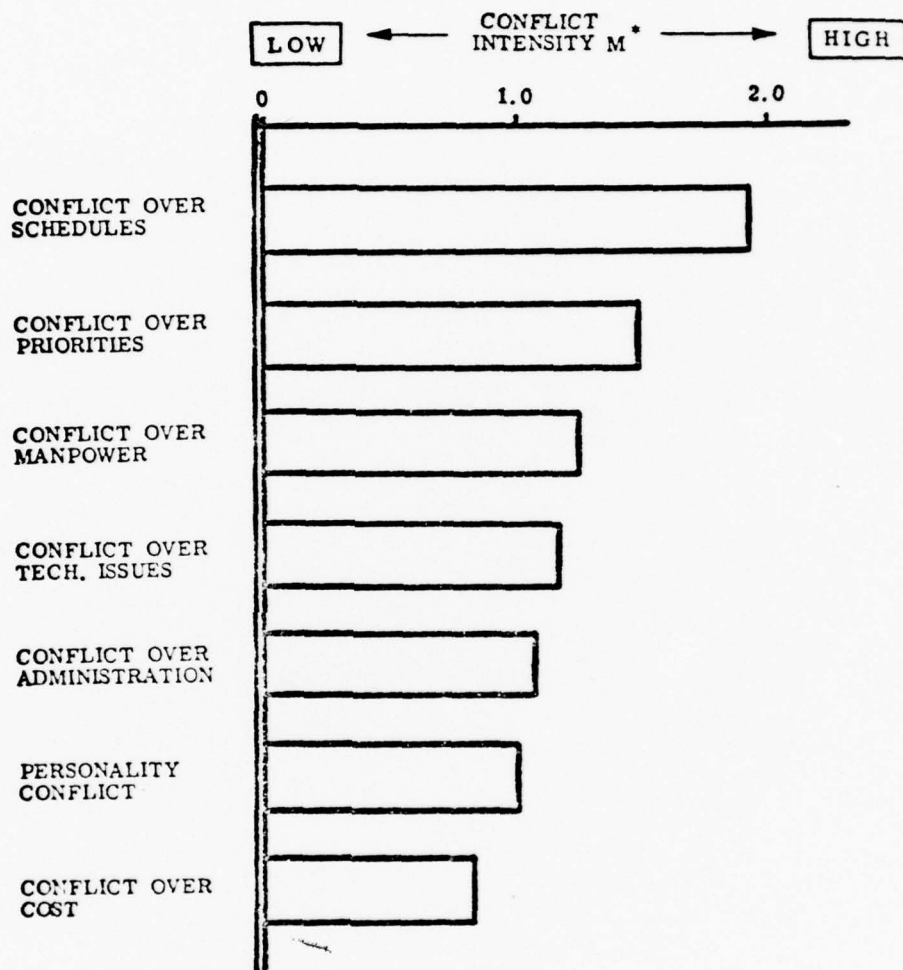
Figure 6. Distributions of Opinions Concerning Conflict in Project Management²¹

In a related study, Drs. Thamhain and Wilemon also investigated the intensity of conflict experienced by project managers in seven areas considered fundamental to project accomplishment. These were conflicts over:

- (1) priorities within the project,
- (2) administrative procedures,
- (3) technical opinions and performance trade-offs,
- (4) manpower resources,
- (5) cost,
- (6) schedules, and
- (7) personality.

A survey of 100 project managers was made and the average intensity of conflict experienced by them in each of the above areas is shown in Figure 7. Conflict over schedules appears to be the major problem. Scheduling conflicts often occur with functional departments and involve disagreements and differing perceptions of organizational department priorities. For example, an issue urgent to the project manager may receive low priority treatment from a support group because of a different priority structure in the support organization.

Conflict over project priorities ranked second highest. This type of conflict frequently developed because the organization did not have prior experience. Priorities within the project then changed from the original forecast requiring reallocation of crucial resources and schedules. This often



* M is the relative intensity of conflict perceived by project managers, measured on a four-point scale: 0-1-2-3, and averaged over the five sources: (1) conflict with functional departments, (2) conflict with assigned personnel, (3) conflict between team members, (4) conflict with superiors, and (5) conflict with subordinates. Hence it follows: $0 \leq M \leq 3$.

Figure 7. Conflict Intensity Profile²²

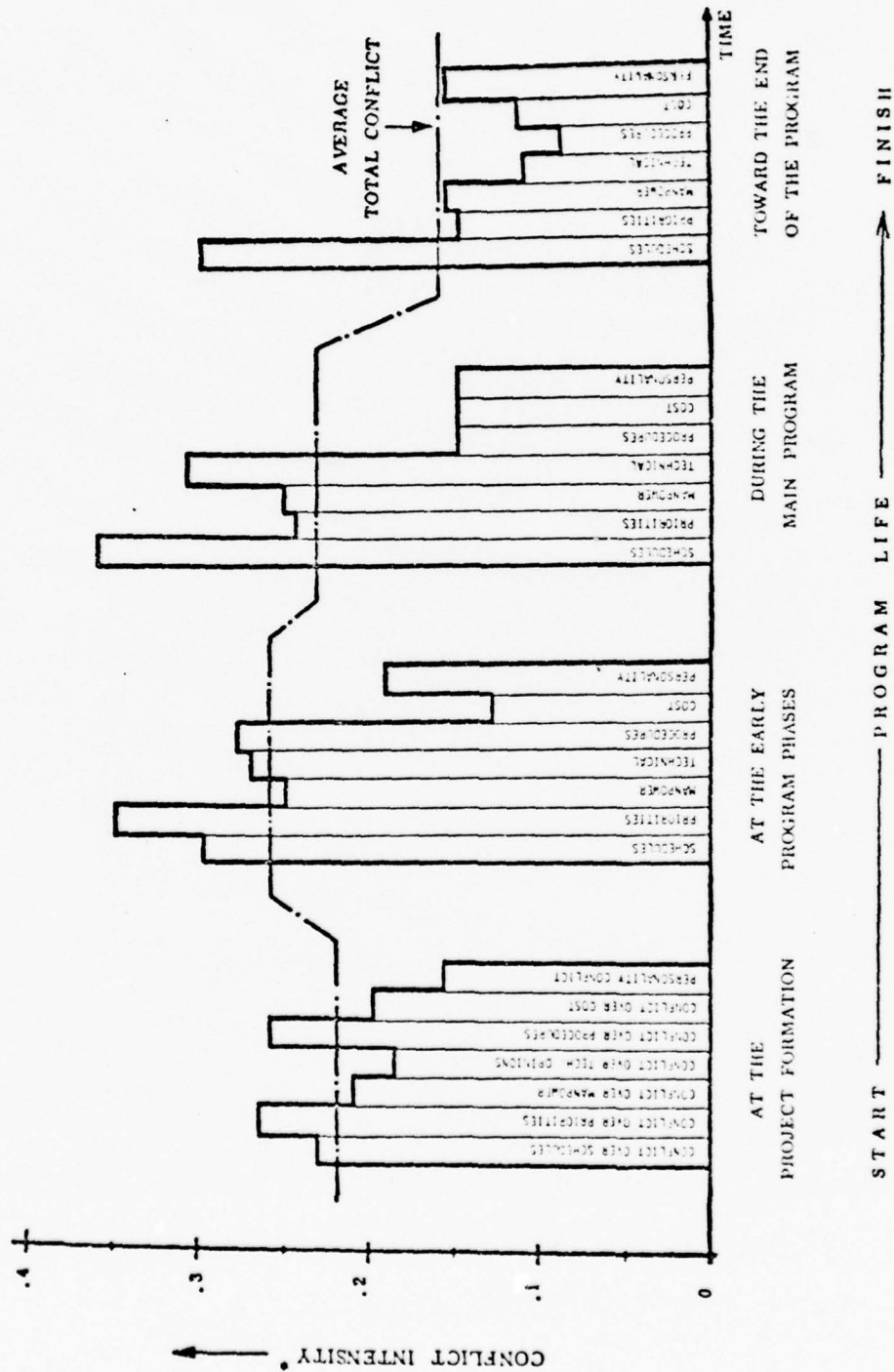
caused intense disagreements and conflicts.

The next most important area of conflict was manpower resources. The lack of organizational slack and external pressures to eliminate "the fat" from the support organizations often caused this conflict. These first three areas accounted for 50 percent of all conflict measured among the seven areas.

Technical disagreements occurred with functional departments whenever the project manager would reject a technical alternative due to cost or schedule. This often happened because the functional manager was usually responsible for the part of the project dealing with performance while the project manager had the broad management overview of the project. Administrative procedures, personality, and cost factors ranked low in intensity. Project managers indicated that while personality conflicts may not be as high as some of the other areas of conflict, they are the most difficult to deal with effectively because they are often obscured by communication problems and technical issues.

Figure 3 shows the intensity of conflict during each life-cycle stage as visualized by industry. These stages could be loosely interpreted as the concept formulation, validation, full scale development, and production stages of life cycle development from the DOD view.

Project managers were also asked to identify the sources of conflict associated with each of the seven areas.



* The Conflict Intensity is computed as the total frequency (F) x magnitude (M) product of conflict experienced within the sample of project managers. Where $0 \leq F \leq 1$ and $0 \leq M \leq 2$. For example, if the average conflict intensity experienced by project managers on schedules with all interfaces was $M=1.65$ (considerable) and $F=14$ of all project managers indicated that "most" of this conflict occurred during the Project Formation Phase, then "Conflict over Schedules" would be $M \times F = 1.65 \times 14 = 23.1$ during project formation.

Figure 8. Relative Intensity of Conflict Over The Life Cycle of Projects.²³

Conflict Cause and Sources*

Conflict Cause	Source Conflict Occurred Mostly With ...				
	Functional Divs	Assigned Personnel	Between Team Members	Superiors	Subordinates
SCHEDULES	<input type="checkbox"/>	<input type="checkbox"/>			
PROJECT PRIORITIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
MANPOWER	<input type="checkbox"/>	<input type="checkbox"/>			
TECHNICAL ISSUES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
ADMINISTRATION	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
PERSONALITY CONFLICT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COST OBJECTIVES	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	

HIGH ——— RELATIVE CONFLICT INTENSITY ——— LOW

LOW ——— RELATIVE CONFLICT INTENSITY ——— HIGH

* The Table includes only the main Conflict Sources for each category (cause). Specifically, the sources which are marked contribute approximately 75% of all conflict in their category.

Figure 9. Conflict Cause and Sources²⁴

Figure 9 shows these results. Conflict is most intense in dealing with functional departments followed by conflict with assigned personnel, conflict between team members, and conflict with superiors. It is weakest in dealing with subordinates. Conflict with the functional departments occurs because project managers often do not have the authority to direct or determine the priorities of the functional departments. At the other end of the spectrum, conflict with subordinates is least intense because project managers have more control over immediate team members and the team members are more likely to share common project objectives with the project manager.²⁵

Continuing with the development of Pondy's conflict episode model (Figure 5), the second stage is perceived conflict. Before actual conflict can evolve, the parties to the relationship must perceive the conditions of latent conflict. Sometimes conflict may be perceived when no conditions of latent conflict exist. This situation is a result of the parties' misunderstanding of each others' true position. This type conflict can be resolved by improving communications between the two parties. Of particular importance, is the case where significant conditions of latent conflict exist and should be clarified. Due to some type of individual suppression mechanism the necessary level of awareness is not reached. This situation, if allowed to continue, could easily progress to the next stage.

Felt conflict is the stage where conflict becomes personalized. This occurs when inconsistent demands and extra-organizational pressures create undue anxieties in the individual and/or when the whole personality of the individual is involved in the relationship. Unless dissipated, hostile feelings are likely to occur.

The fourth stage of conflict is manifest conflict. Manifest conflict is any of several varieties of non-cooperative conflictful behavior. It could range from passive resistance to open aggression. Overt behavior depends on the individual, the environment and his perception of strategic considerations as well as upon availability of conflict resolution mechanisms.

As a general rule, violence as a form of manifest conflict is rare. Motivators may still be there but they tend to be expressed in less violent forms such as concealment and/or distortion of information, exaggeration, interference, apathy, rigid adherence to rules to avoid doing anything extra, continuous appeals to superiors on requirements to perform tasks, low trust, unfriendliness and lack of respect. Conflict at this stage is completely dysfunctional and needs to be defused as soon as possible. Conflict resolution programs should be applied prior to the manifest conflict stage. The objective of these programs should be to prevent conflicts which have reached the level of awareness from erupting into non-cooperative behavior.

Finally, each conflict episode is followed by the conflict aftermath. If the conflict is genuinely resolved to the satisfaction of all participants, the basis for a more cooperative relationship is laid. If the conflict is merely suppressed and not resolved, the latent conditions of conflict will just smolder and when aggravated, will explode in a more serious form until the situation is rectified or until the relationship is dissolved.²⁶

CHAPTER IV

CONFLICT RESOLUTION

The challenge to us is not to find a utopia in which there is no more conflict. This would be stultifying and would be the last place most of us would want to live. Our problem is rather that of finding ways to use conflict toward creative ends in our social relationships.²⁷

A key role of the project manager is to maximize the beneficial aspects of conflict and minimize its detrimental consequences. The most important element in attaining this goal is the method by which conflict is resolved. Conflict resolution means termination of a conflict episode. Conflict may be resolved in a number of ways. Each result provides a different aftermath or atmosphere for future conflict episodes. Fundamental to effective resolution is an understanding of the various resolution methods and the type of management styles associated with these methods.

Before these factors are explored, however, a realization of the type of individual that a project manager deals with is important. Almost all of the personnel associated with the project manager are professionals-scientists and engineers-who tend to be perfectionists. The tendency to finish a job to a "T", if allowed to run rampant, could result in delays and reduced productivity of the project as a whole.²⁸

One project manager put it this way:

An engineer in the laboratory may feel that we should settle for nothing less than zero leakage on a certain seal. He has a certain background, a certain psychological makeup that you have to understand, appreciate, and not violate. You can't tell a guy like that, go to hell that he doesn't understand the problem. This guy can be a Ph.D. and can darn well know exactly what he's talking about. So, you've got to find within your own means, the mechanisms for communicating with him.²⁹

Research on organizational behavior, on problem solving and on bargaining behavior provides the basis for developing methods of conflict resolution. In 1969, Dr. Donald J. Burke, a professor at York University in Toronto, collected data from 74 managers. These managers described the way they and their superiors dealt with conflict. Five different methods of resolution, as originally proposed by Blake and Mouton in 1964, were identified. These were:

1. Withdrawal: Retreating from actual or potential conflict situations.
2. Smoothing: Deemphasizing differences and emphasizing commonalities over conflictual issues.
3. Compromising: Considering various issues, bargaining and searching for solutions which attempt to bring some degree of satisfaction to the conflicting parties.
4. Forcing: Exerting one's viewpoint at the potential expense of another party. Characterized by a win-lose situation.

5. Confrontation: Addressing a conflict directly through problem-solving whereby affected parties work through their disagreements.³⁰

Based on the perception of the 74 managers, the five methods of conflict resolution were associated with effective and ineffective resolutions and results are shown in table 2.

<u>METHODS</u>	<u>% EFFECTIVE</u>	<u>% INEFFECTIVE</u>
Withdrawal	0.0	9.4
Smoothing	0.0	1.9
Compromise	11.3	5.7
Forcing	24.5	79.2
Confrontation	58.5	0.0
Other	5.7	3.8

Table 2. Methods Associated With Effective and Ineffective Conflict Resolution³¹











Confrontation was the most common method for effective resolution followed by forcing and compromise. The prominence of confrontation as an effective method is consistent with an earlier study by Dr. Burke. The value for forcing however, was much higher than expected. When analysed further, it was discovered that those managers who indicated forcing was an effective method were the victors in the win-lose situations. Moving to the right side of the table, forcing was the most commonly used method for ineffective

resolution, followed in second place by withdrawal. The vast majority of these individuals were losers as a result of forcing behavior.³²

In 1967, P. R. Lawrence and J. W. Lorsch, professors at Harvard conducted a study of 10 industrial organizations. Confrontation as a method of conflict resolution showed up in all 10 of the organizations. However, managers in the six most effective organizations did significantly more confronting of conflict than their counterparts in the other four less effective organizations. One other interesting point noted was that the managers in the more effective organizations were also using more forcing and/or less smoothing behavior than their counterparts. This suggests that while confrontation may be the primary basis for resolving conflict, it is also important to have a backup mode of some forcing behavior to ensure that the issue will be at least addressed and discussed,³³ and not avoided.

In the study conducted by Drs. Thamhain and Wilemon, addressed in Chapter III, the relationship of perceived conflict intensity to method of conflict resolution was also examined. Figure 10 summarizes the association. Forcing, withdrawal and confrontation are significantly and positively correlated to the same conflict measure. This appears to contradict the more commonly accepted conclusion that confrontation is an asset to conflict resolution and not a deterrent.

(The figure shows only those associations which are statistically significant at the 95 percent level)

Intensity of Conflict Perceived by Project Manager (P.M.)	Actual Conflict Resolution Style				
	FORCING	CONFRONTATION	COMPROMISE	SMOOTHING	WITHDRAWAL
BETWEEN P. M. AND HIS PERSONNEL					
BETWEEN P. M. AND HIS SUPERIOR					
BETWEEN P. M. AND FUNCTIONAL SUPPORT DEPARTMTS					



Strongly favorable association with regard to low conflict (- τ).



Strongly unfavorable association with regard to low conflict (+ τ).

* Kendall τ Correlation

Figure 10. Association Between Perceived Intensity of Conflict and Mode of Resolution³⁴

It must be noted that the responses in this study address those methods that increase conflict. Confrontation may well increase conflict yet it may be desirable because the resulting conflict is beneficial to the project manager.³⁵

In order to put these methods in the proper perspective, it may be helpful to establish three basic strategies for dealing with conflict: the win-lose strategy, the lose-lose strategy, and the win-win strategy. The win-lose strategy, is exemplified by the forcing method of resolving conflict. It has a victor and a vanquished. The rate of tension, problem avoidance, fighting and competitive feelings increase in the losing group. This group will often prepare itself to fight better the next time, to win regardless of whether its effort is

beneficial to the overall project. It may also result in excessive documentation on the part of the losing team in order to protect itself if the project fails.

The lose-lose strategy is so named because neither side really accomplishes what it wants. A common lose-lose method is compromise. It is negative because the parties involved give up something and therefore neither is completely happy. The process involves arguing about the means for solving the problem as each views it, rather than agreeing on the best approach to attaining the objective. Compromising may often lead to suboptimal decision-making to the detriment of the project. There is also a tendency for parties to form coalitions in order that its viewpoints will receive the maximum impact while minimizing the input of others.

In contrast to the other two strategies, the win-win strategy focuses initially on ends or goals rather than on obvious and sometimes unnecessary alternatives. Confrontation or problem solving is a win-win method of conflict resolution. Emphasis is placed on: (1) defeating the problem rather than each other; (2) avoiding voting, trading or averaging; (3) seeking facts to resolve dilemmas; and (4) avoiding self-oriented behavior. A party using this method is saying three things to other parties involved:

1. "I want a solution which achieves your goals and my goals."
2. "It is our collective responsibility to be open and honest about facts, opinions, and feelings."

3. "I will control the process by which we arrive at agreement but will not dictate content."

Another major factor impacting on conflict resolution is the management style of the project manager. Drs. Robert Blake and Jane Mouton, consultants who provide behavioral science services to industry, have developed a managerial grid which reflects the various styles of management (Figure 11).. There are two major concerns in a conflict situation - concern for resolving the latent conditions of the conflict and concern for the parties involved. The horizontal axis represents concern for the latent conditions while the vertical axis represents concern for the parties. The number 1 in each instance represents minimum concern. The 9 stands for maximum concern. Using this scaling, the following styles are identified: low concern for latent conditions and parties (1,1); low concern for latent conditions and high concern for parties (1,9); high concern for latent conditions and low concern for parties (9,1); high concern for latent conditions and high concern for parties (9,9); and moderate concern for latent conditions and moderate concern for parties (5,5).³⁷

The (9,1) win-lose style of manager is one who seeks to resolve the latent conditions of conflict at all costs, without concern for the needs or acceptance of others. For him, conflict is a nuisance. It occurs only because others don't see his viewpoint. He is usually armed with facts that support his position or that show others they are wrong. The forcing

Figure 11. The Managerial Grid³⁸

method of conflict resolution is characteristic of this style manager.

The (1,9) yield-lose style person overvalues the relationship with the other parties involved and undervalues achievement of his own goals. He feels conflict grows out of self-centeredness of individuals and should be avoided in favor of harmony. Smoothing is the approach this type manager undertakes. He is strongly against confrontation and forcing because he believes they are destructive. He will often try to redirect conflict by breaking the tension with humor or suggesting some nonconflicting activity.

The manager employing the (1,1) lose-leave style is a loser in every sense of the word. He sees conflict as a hapless, useless and punishing experience and simply removes himself mentally or physically from the situation. Relying solely on the withdrawal method of conflict resolution, he will comply to avoid disagreement and tension and as such will feel little commitment to the decision reached. The project manager who uses this style is quick to put the blame on everyone else when his project fails.

The (5,5) compromise style individual uses the approach that half a loaf is better than none. He enjoys the maneuvering required to resolve conflict and actively seeks to find some strong middle ground. This style manager may seek to use voting, trading or rules as a way of avoiding direct confrontation.

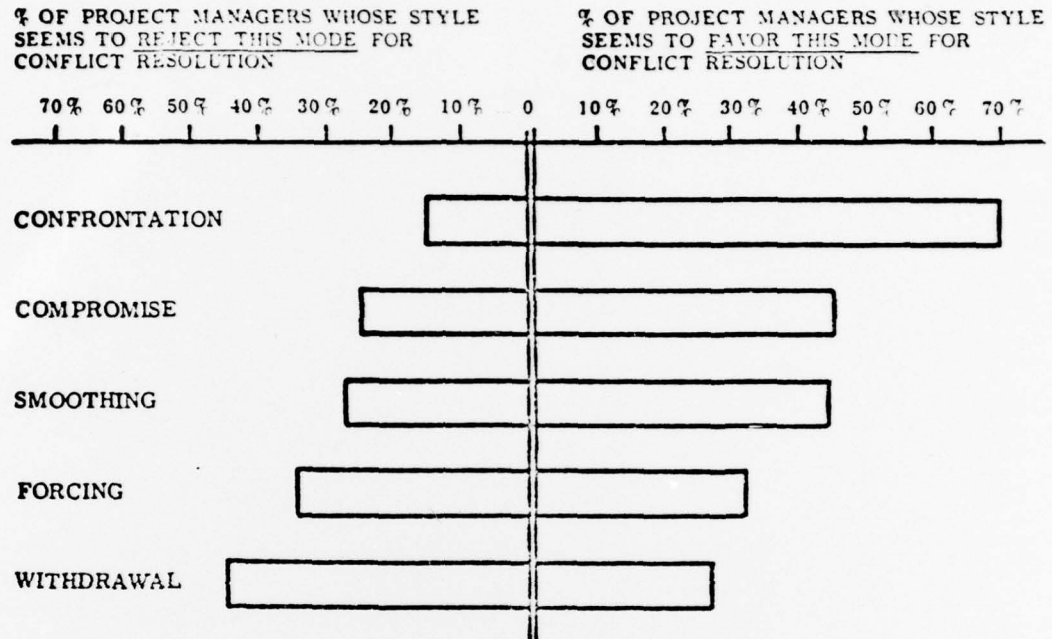
tion on the issues rather than working out the disagreement in order to find the best solution.

The (9,9) integrative style of manager seeks to satisfy his own goals as well as the goals of others. This style person sees conflict as natural and helpful, and leading to a more creative solution if handled properly. He primarily relies on confrontation as the main method of conflict resolution but will not hesitate to use one of the other methods as a temporary expedient if he sees that it will be beneficial.

The style of behavior that parties exhibit in a conflict usually depends on: (1) each party's beliefs about the possibility of arriving at an agreement; (2) the objective possibility of finding a win-win solution; and (3) the relative consequences for each party if either or both cannot find a satisfactory solution. When the parties believe that agreement is possible and the stakes are high, generally they will engage in confrontation. If the stakes are low and the consequences of the outcome are not that important to them, they will smooth over the disagreement, yielding if necessary. In contrast, if the parties do not believe that agreement is possible and the stakes are high, they will tend to engage a win-lose strategy. Alan C. Filley from the University of Wisconsin states effective conflict resolvers rely heavily on the integrative style (9,9) and to some extent on the yield lose (1,9) style of management. On the other hand, ineffective

conflict resolvers rely on the win-lose (9,1) style and lose-leave (1,1) style. Compromise (5,5) can be used in both effective and ineffective ways.³⁹

A recent study on the conflict handling modes of project managers provides the patterns illustrated in Figure 12. As indicated, confrontation was most frequently utilized as a conflict resolving technique while withdrawal was the least utilized. It is interesting to note that all methods are favored by some project managers. This tends to suggest that it is not as important to search for the best method of conflict resolution as it is to understand each of them individually and to employ the full range of them as appropriate. While confrontation was found as the ideal approach under most circumstances, other methods can be equally effective under the right circumstances. Withdrawal, for example, can be used effectively as a "cooling off" approach to a hostile reaction. Smoothing may be appropriate for a relatively unimportant situation particularly if it creates the proper aftermath for future more critical conflicts. A project manager may even use all methods except confrontation to eventually get an effective resolution.⁴⁰



The relative importance of these conflict resolution modes was measured by using aphorisms originally developed by P. R. Lawrence and J. W. Lorsch. Fifteen aphorisms were selected to match the five methods of conflict resolution. Project managers were asked to rank on a four-point scale their agreement with each of the fifteen aphorisms for dealing with various project situations and interfaces. Thus, the resulting scores (0-12 for each mode) measured the strength at which project managers seem to favor or reject a particular mode for resolving conflict in specific personnel interface situations. The wording of the scales was such that an aggregate score of 0-4 classified the reply as a rejection of the particular mode while a score of 8-12 was classified as favoring the mode.

Figure 12. Conflict Resolution Profile⁴¹

CHAPTER V

SUMMARY

The use of the matrix concept in military project management will continue for a long time to come. It's flexibility, efficient use of manpower and responsiveness make it an excellent tool to cope with the requirement of developing highly complex and costly weapon systems. However, it requires a manager that not only has a combination of broad work experience and education but also one who is aggressive, confident, persuasive, verbally fluent, imaginative, clever, enthusiastic, flexible, adventurous and prefers to take the initiative.⁴² Matrix management is complex and difficult to implement. The need to operate across many different organizations in order to get the job done fosters many problems that challenges the best of managers. Inherent in this process is the demand to effectively deal with conflict.

Conflict can be beneficial or dysfunctional. In developing the conditions for conflict, several sets of circumstances were described which could encourage conflict. These ranged from a misunderstanding of project objectives to diversity of expertise among the participants of the project team. In addition, the intensity of conflict was investigated when dealing with project priorities, administrative procedures, technical opinions, manpower resources, cost, schedules and

personalities. Conflict over schedules rank the highest whereas conflict over cost was the lowest in intensity. The most intense conflict also occurred when dealing with functional departments.

Since conflict is a fundamental characteristic of matrix management, the good program manager must have a "sixth sense" to know how to deal with it so that its harmful aspects are minimized and its beneficial elements are promoted. Five methods of conflict resolution were developed. These were withdrawal, smoothing, compromise, forcing, and confrontation. In general, confrontation was recognized as being the most appropriate method of conflict resolution in most cases. However, the other four methods cannot be ruled out and each may have a proper use under certain circumstances. In the final analysis, the project manager has sole responsibility for the outcome of his project and the manner in which he handles conflict will impact on the success or failure of his project.

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